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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,826

12/30/2005

Kousuke Akiyama

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EXAMINER

AHMED. SHEEBA

ART UNIT

PAPER NUMBER

1773

MAIL DATE

DELIVERY MODE

06/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,826

Applicant(s)

AKIYAMA

Examiner

Sheeba Ahmed

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/30/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Preliminary Amendment

1. The Preliminary Amendment submitted on December 30, 2005 has been entered. Claims 1-10 are cancelled. **Claims 11-20 are added and are pending.**

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 18 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18 and 20 recite "an epichlorohydrin-based" crosslinking agent. The term "based" renders the claim indefinite because it is unclear whether the limitations following the term are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 11-13, 16, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billmers et al. (US 2002/0015854.)

Billmers et al. disclose a paper coating composition providing good barrier properties comprising a blend of hydrophobically modified high amylose starch and polyvinyl alcohol. The starch is modified with a hydrocarbon group of 6 to 18 carbon atoms. The starch is hydrophobically modified with hydrocarbon groups of at least 6 carbon atoms, more particularly 6 to 18 and preferably 8 to 12 carbon atoms. This hydrophobically modified starch can be prepared by reacting starch and an organic anhydride reagent. All types of fillers, pigments, dyes and rheology modifiers may be added in the usual manner to the paper product which is to be coated or sized. Such materials include clay, talc, titanium dioxide, calcium carbonate, calcium sulfate and diatomaceous earths. Usually an effective additive amount of up to about 25% by weight can be used. The starches can be employed in amounts to provide a coating or size concentration ranging from about 0.25 to 15.0% by weight, dry basis, and preferably from about 0.5 to 5% by weight based on the weight of the finished dry paper. Within this range, the precise amount which is used will depend for the most part upon the type of pulp which is being utilized, the specific operating conditions, as well as the particular end use for which paper is desired. The use of the present starches as coatings and surface sizing agents results in paper characterized by improved water resistance, reduced porosity and increased oil resistance.

Billmers et al. do not teach that the coating containing the hydrophobized starch is present in an amount of 0.5 to 20g/m².

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However, it would have been obvious to one having ordinary skill in the art to optimize the coating weight of the hydrophobized starch coating given that Billmers et al. specifically teach that the starches as coatings and surface sizing agents results in paper characterized by improved water resistance, reduced porosity and increased oil resistance.

4. Claims 14, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billmers et al. (US 2002/0015854) in view of Reiners et al. (US 6,090,871).

Billmers et al. do not state that their coating further comprises a fatty acid. However, Reiners et al. disclose polyamine-epichlorohydrin resins and polyamide-amine-epichlorohydrin resins have been employed for a long time for improving the dry and wet strength of paper. Cationic polycondensates with hydrophobic radicals, for example based on fatty acid-modified polyamines, are also suitable as sizing agents for paper. It is furthermore known that the strength of paper in the dry state can be increased by application of starch (see Background section).

Accordingly, it would have been obvious to one having ordinary skill in the art to add a fatty acid to the coating taught by Billmers given that Reiners et al. teach that doing so improves the dry and wet strength of paper.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 6am to 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sheeba Ahmed
Art Unit 1773
June 24, 2007